

Work Order ID 81974-1 *847*

**\*81974\***

Page 1

March-21-12 1:52:30 PM

Item ID: D2646

Accept

**\*N900040100\***

Setup Start

**\*NS1\***

Revision ID:

Stop

**\*NS2\***

Item Name: Aft Cap

Start Date: 21/03/2012 Start Qty: 50.00 *40*

**\*50\***

Cust Item ID:

Required Date: 04/04/2012 Req'd Qty: 50.00

**\*50\***

Customer:

Reference:

Approvals: Process Plan: *MLJ*

Date: *12/03/21*

Tooling:

Date:

Run Start

**\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop

**\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2646	Rev C								
100		0.00							
<b>*100*</b>	PURCHASING								
Purchasing	Memo	0.00							
Purchasing	Issue P/O: <i>16529</i> 1-Spin as per Dwg D2646 2-Material release note required								
110	Receive & Inspect for Damage & Mat'l Certs	0.00							
<b>*110*</b>									
Packaging	Memo	0.00							
Packaging	Ensure Material Release Note is attached								
120	QC6- Inspect dimensions to drawing	0.00							
<b>*120*</b>									
QC	Memo	0.00							
Quality Control									

*CK 12/03/22 50*

*12/4/12 (50)*

*counts*  
*(50)*  
*as per*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



\*81974\*

Page 2

\*N900040100\*

Setup Start \*NS1\*

Stop \*NS2\*

Start Date: 21/03/2012    Start Qty: 50.00    \*50\*

Cust Item ID:

Required Date: 04/04/2012    Req'd Qty: 50.00    \*50\*

Customer:

**Reference:**

Approvals:      Process Plan:      Date:      Tooling:      Date:

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Insp.  
Stamp

0.00

\*130\*

### Small Fab

0.00

### Small Fab

## Memo

### Small Fab

1-Drill using DT8026 as per Dwg D2646.2-Open holes to .297 as per Dwg D2646.3-Deburr

140

QC5- Inspect part completeness to step on W/O

0.00

\*140\*

## Memo

0.00

QC

## Quality Control

150

Chemical Conversion Coat per QSI005.4.1

0.00

\*150\*

## Memo

0.00

### HandFinish

### Hand Finishing

PTO  $\rightarrow$

W/O: 81974

## WORK ORDER CHANGES

DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
		14 caps were painted blue w/ split order; remaining 26 to be powder ctd white. AR 12-5-19					

Part No: D2646 PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:

## WORK ORDER NON-CONFORMANCE (NCR)

DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date &amp; initial all entries



Work Order ID 81974

\*81974\*

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March-21-12 1:52:31 PM

Item ID: D2646

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Aft Cap

Start Date: 21/03/2012 Start Qty: 50.00

\*50\*

Cust Item ID:

Required Date: 04/04/2012 Req'd Qty: 50.00

\*50\*

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start \*NR1\*

QC:

Date:

SPC (Y/N):

Date:

Stop \*NR2\*

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

160

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

\*160\*

Powdercoat

Memo

0.00

Powder Coating

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

26x

✓

ML  
12/05/22

ml 21134

320°F

12:15

170

QC3- Inspect Part Finish

0.00

\*170\*

QC

Memo

0.00

Quality Control

26 ✓

12/05/22

180

Small Fab

0.00

\*180\*

Small Fab

Memo

0.00

Small Fab

Install inserts as per Dwg D2646

26 ✓

12/05/24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



# Work Order ID 81974

**\*81974\***

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March-21-12 1:52:31 PM

Item ID: D2646

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Aft Cap

Start Date: 21/03/2012 Start Qty: 50.00

**\*50\***

Cust Item ID:

Required Date: 04/04/2012 Req'd Qty: 50.00

**\*50\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

190

QC5- Inspect part completeness to step on W/O

0.00

**\*190\***

QC

Memo

0.00

Quality Control

*26 B12-5-28*

200

Identify as per dwg & Stock Location: *F2-2*

0.00

**\*200\***

Packaging

Memo

0.00

Packaging

*x26 d M 12/5/28*

210

QC21- Final Inspection - Work Order Release

0.00

**\*210\***

QC

Memo

0.00

Quality Control

*12/5/29*

*WF 12-05-28*



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



# Picklist Print

March-21-12 1:52:34 PM

Page 1

Work Order ID: 81974

\*81974\*

Parent Item: D2646

\*D2646\*

Parent Item Name: Aft Cap

Start Date: 21/03/2012

Required Date: 04/04/2012

Start Qty: 50.00

Required Qty: 50.00

## Comments:

IPP: G05.08.22Hole size revised in Step 5KJ/JLM

IPP Rev:H Changed Inserts 07-02-19 JLM

IPP rev I changed inserts 07.06.11 EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

ALS7-1032-130

Purchased

No

110

Each

1.952.000

2

100

52

\*AI S7-1032-130\*

Insert

Y A664-1032-130

1171269

\*\*

M 11/03/12

## Location

## Loc Qty

## Loc Code

ST280

237

117717

27

118966

22

119775

188

ST282

1715

119530

73

120181

1642

X52

D2646P

Purchased

No

180

Each

0.0000

1

50

\*D2646P\*

Aft Cap

\*\*

6/12/12 (50)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

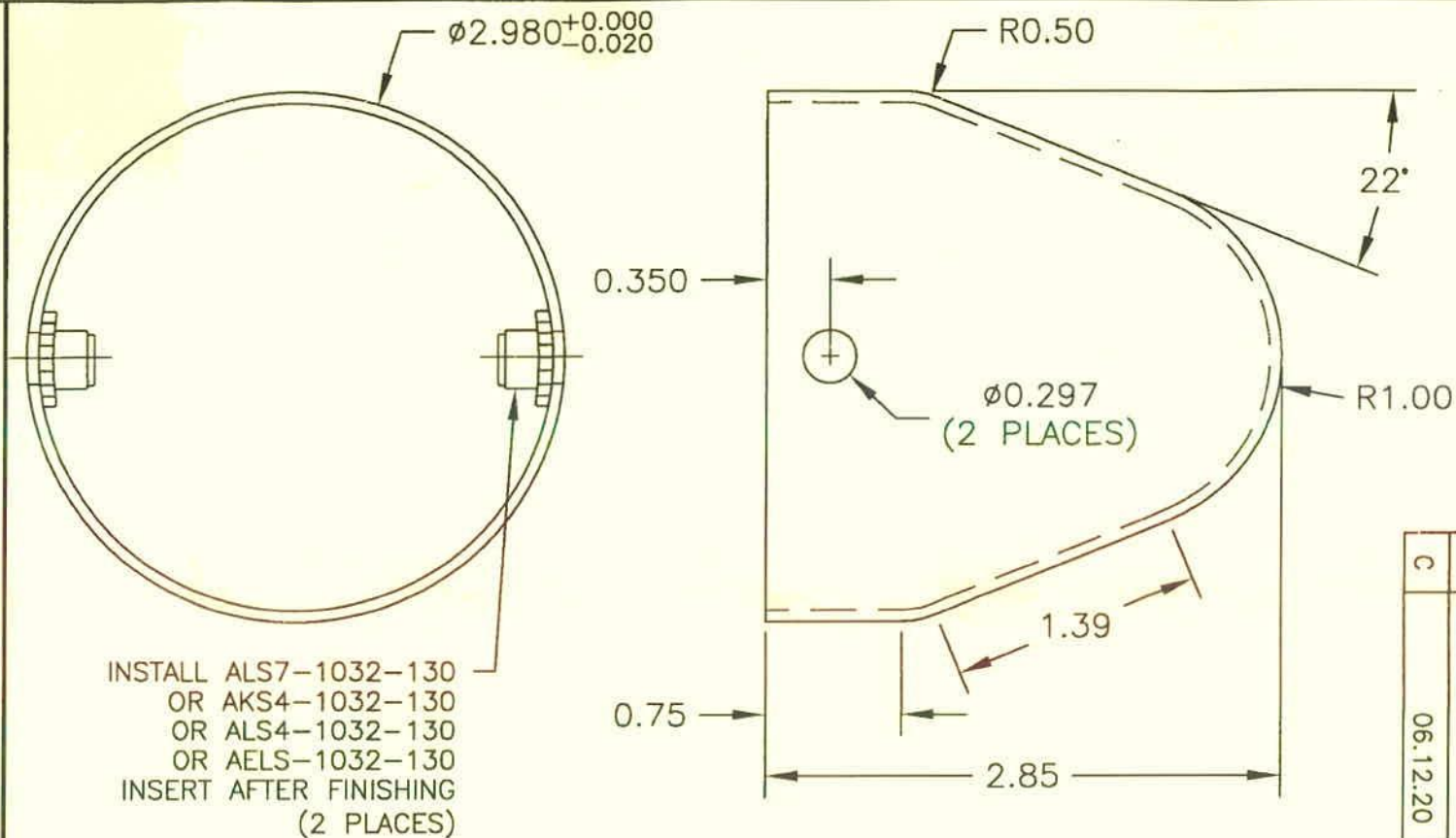
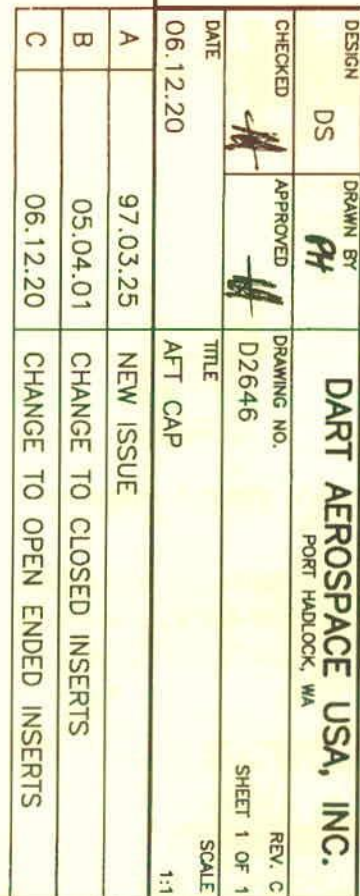
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries





- 1) MATERIAL: ALUMINUM 1100-O 0.063 THICK (QQ-A-250/1)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
POWDER COAT ASSEMBLY WHITE (4.3.5.1) PER DART QSI 005 4.3
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER

~~NO~~

PL 12-03-21

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.







Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID PO16529

Purchase Order Date 3/22/12

PO Print Date 3/22/12

Page Number 1 of 1

Order From :

VC-SIE001

SIEG'S MANUFACTURING LTD.  
6236 - 205 STREET  
LANGLEY, BC V2Y 1N7  
CA

Contact Name

Vendor Phone

Vendor Fax

Vendor Account Nbr

604 530 7455

604 530 7490

Buyer

Requisition Nbr

Tax Resale Nbr

Terms

Currency

FOB

Chantal Lavoie

10127-2607

Net 30

CAD

Destination-Collect

Ship To :

DART AEROSPACE LTD

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**FAXED**  
3/22/12

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	D2646P	Aft Cap	4/06/12 Yes	50.00 Each	FedEx PL collect	\$6.4700	\$323.50

Special Inst: AS PER DWG D2646 REV. C  
B81974

PO Total:

\$323.50

MATERIAL CERTIFICATION  
REQD UPON DELIVERY

No substitution or deviation without  
consent.  
Certificate of Conformity or Material  
Certification required when applicable

Change Nbr: 1

Change Date: 3/22/12







# Sieg's Manufacturing Ltd. Packing Slip

Metal Spinning & Metal Fabricating

6236 205 Street

Langley, BC, Canada V2Y 1N7

Phone:(604)530 7455 Fax:(604)530-7490

Check out our website: [www.siegsmf.com](http://www.siegsmf.com)

Packing Slip No.:

40588

Date:

04/03/2012

Page:

1

<b>Sold to:</b> DART AEROSPACE LTD. 1270 ABERDEEN STREET HAWKESBURY, ONTARIO K6A 1K7		<b>Ship to:</b> DART AEROSPACE LTD. 1270 ABERDEEN STREET HAWKESBURY, ONTARIO K6A 1K7	
<b>Order No.:</b> 16529		<b>Sold By:</b> KAULBARS, ARLA	
<b>Shipped By:</b> Fed EX		<b>Ship Date:</b> 04/03/2012	
<b>Tracking No.:</b>			

Item No.	Unit	Description	Quantity
D2646 P	Each	Aft Cap	50
Comment:			





ThyssenKrupp Materials NA  
Ken-Mac Metals Division



10/14/11

ThyssenKrupp

CERTIFIED CHEMICAL & MECHANICAL ANALYSIS

Sold To: Copper & Brass Sales  
P.O. Box 5116

Ship To: Copper & Brass Sales  
404 Centura Court

Southfield MI 48086-5116

Spartanburg SC 29303

Customer PO Number: 5400111624-R01

Part No:

Ken-Mac Order/Item: 462255-1

Item Description : MA .06300 48.000 144.000 1100 0 MFREG MFREG

Heat/Lot: 28149601A Mill Tag No : 427978  
KM Stock No: 167291 Case Tickets: 752416, 752417, 752418

Chemical Composition

(Si)	(Cu)	(Fe)	(Zn)	(Al)
.1100	.1300	.6000	.0100	99.15

Mechanical Composition

Tensile PSI: 13,500 Yield PSI: 5,900 Elongation: 30.0 Hardness as Shipped:

Heat/Lot: 28149601A Mill Tag No : 427979  
KM Stock No: 167292 Case Tickets: 752418, 752419, 752420

Chemical Composition

(Si)	(Cu)	(Fe)	(Zn)	(Al)
.1100	.1300	.6000	.0100	99.15

Mechanical Composition

Tensile PSI: 13,500 Yield PSI: 5,900 Elongation: 30.0 Hardness as Shipped:

Total Pounds: 16,498

A Page 1

  
Bob Harley - Corporate Quality Manager







Skana Aluminum Co  
Rolling Mill - Certified Metal

Certification of Properties and Analysis

Physical test: 112843 Aluminum Alloy: 1100 Temper: -O- Thickness: .0830

Tested For: Copper and Brass Sales 6156 PO No: 5400107660-R01

Chemical	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others	Al
Min Range	..	..	0.05	..	..	..	..	..	..	..	..
Max Range	.95 Si	+ Fe	0.20	0.05	..	..	..	0.1	..	0.05	..

Coil Ref. No.	1	2	3								
Tensile Strength KSI	13.03	13.12	12.81								
Yield Strength KSI	6.37	6.28	5.17								
% Elong. in 2 in.	31.70	31.70	31.60								
Coil Ref. No.											
Tensile Strength KSI											
Yield Strength KSI											
% Elong. in 2 in.											
Coil Ref. No.											
Tensile Strength KSI											
Yield Strength KSI											
% Elong. in 2 in.											
Coil Ref. No.											
Tensile Strength KSI											
Yield Strength KSI											
% Elong. in 2 in.											
Coil Ref. No.											
Tensile Strength KSI											
Yield Strength KSI											
% Elong. in 2 in.											

Remarks

Tested By: NH

Certified Date: 22 Sep 2011

NH .063 X 48.000 MF 3/3

ITEM# ALFLR01226

MEETS/EXCEEDS ASTM B209-10 SPECS

Thursday, September 22, 2011

MADE IN THE U.S.A.

QF 824-1-1

Page 1 of 1





**Skana Aluminum Company**  
**Rolling Mill - Certified Metal**  
**Certification of Properties and Analysis**

Physical test: 112843 Aluminum Alloy: 1100 Temper: -O- Thickness: .0630

Tested For: Copper and Brass Sales

6156

PO No: 6400107660-

Chemical	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others	Al
Min Range	..		0.05	..	..	..	..	..	..		
Max Range	.95 Si	+ Fe	0.20	0.05	..	..	..	0.1	..	0.05	

1	13.03	5.37	31.70	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others
				.193	.484	.087	..	..	..	..	..	..	..

Al

BAL

2	13.12	5.28	31.70	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others
				.185	.049	.089	..	..	..	..	..	..	..

Al

BAL

3	12.81	5.17	31.60	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others
				.162	.439	.082	..	..	..	..	..	..	..

Al

BAL

Remarks

Tested By: NH

Certified Date: 22 Sep 2011

NH .063 X 48,000 MF 3/3

ITEM# ALFLR01226

MEETS/EXCEEDS ASTM B209-10 SPECS

Thursday, September 22, 2011

MADE IN THE U.S.A.

QF 824-1-2

Page 1 of 2





**ThyssenKrupp Materials NA**  
**Ken-Mac Metals Division**



10/14/11

**ThyssenKrupp**

**CERTIFIED CHEMICAL & MECHANICAL ANALYSIS**

Sold To: Copper & Brass Sales  
P.O. Box 5116

Ship To: Copper & Brass Sales  
404 Centura Court

Southfield MI 48086-5116

Spartanburg SC 29303

Customer PO Number: 5400111624-R01

Part No:

Ken-Mac Order/Item: 462255-1

Item Description : MA .06300 48.000 144.000 1100 0 MFREG MFREG

Heat/Lot: 28149601A Mill Tag No : 427978  
KM Stock No: 167291 Case Tickets: 752416, 752417, 752418

----- Chemical Composition -----  
(Si) (Cu) (Fe) (Zn) (Al)  
.1100 .1300 .6000 .0100 99.15

----- Mechanical Composition -----  
Tensile PSI: 13,500 Yield PSI: 5,900 Elongation: 30.0 Hardness as Shipped:

Heat/Lot: 28149601A Mill Tag No : 427979  
KM Stock No: 167292 Case Tickets: 752418, 752419, 752420

----- Chemical Composition -----  
(Si) (Cu) (Fe) (Zn) (Al)  
.1100 .1300 .6000 .0100 99.15

----- Mechanical Composition -----  
Tensile PSI: 13,500 Yield PSI: 5,900 Elongation: 30.0 Hardness as Shipped:

Total Pounds: 16,498

A Page 1

**Bob Harley - Corporate Quality Manager**

To the best of our knowledge, the aforementioned material conforms to all applicable standards.





L-A-B  
ACCREDITED  
#L2068-1

ALERIS ROLLED PRODUCTS, LLC  
C/O ALERIS ROLLED PRODUCTS, INC.  
P O BOX 480  
LEWISPORT, KENTUCKY 42351

ALUMINUM CERTIFICATION SHEET

THIS IS TO ADVISE THAT THE MATERIAL PRODUCED FOR YOUR ORDER  
CONFORMS TO THE SPECIFICATIONS OUTLINED BY THE ALUMINUM ASSOCIATION.  
MATERIAL WAS MELTED, ROLLED, AND PROCESSED IN THE USA.  
THE TEST RESULTS RELATE ONLY TO THE SKID IDENTIFIED BELOW:

SKID : 427978 CUSTOMER: THYSSENKRUPP MATERIALS, NA  
ORDER: 00337316-000001 17901 ENGLEWOOD DRIVE  
CLEVELAND OH44130  
LOT : 281496  
SUBLOT : 28149601A PO # : 124138  
PART # :  
DESCRIPTION: ALLOY 1100  
TEMPER O  
SIZE .0630 X 48.0000

SPECS: ASTM B209

DATE TESTED: 09/13/2011 CHEMICAL COMPOSITION - ASTM E1251

SI	FE	CU	MN	MG	CR	ZN	TI	GA	V	AL
.11	.60	.13	.00	.00	.00	.01	.00	.00	.00	99.11

DATE TESTED: 10/02/2011 MECHANICAL PROPERTIES - ASTM B557

	RESULTS	T42 RESULTS	T62 RESULTS
ULTIMATE TENSILE STRENGTH MIN (KSI)	13.5		
ULTIMATE TENSILE STRENGTH MAX	13.6		
ULTIMATE TENSILE STRENGTH AVG	13.6		
YIELD STRENGTH MIN (KSI)	5.9		
YIELD STRENGTH MAX	6.4		
YIELD STRENGTH AVG	6.2		
ELONGATION MIN %	30		
ELONGATION MAX %	30		
ELONGATION AVG %	30		

NET SKID WEIGHT: 8,422

CHEMICALS CERTIFIED: /S/ SUSAN MUDD, QUALITY SYSTEMS SUPERINTENDENT  
MECHANICALS CERTIFIED: /S/ SUSAN MUDD, QUALITY SYSTEMS SUPERINTENDENT

